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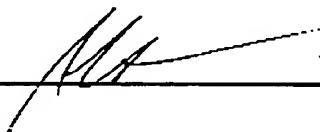|		
To Fax no.:	(571) 273-8300	P.O. Box 2999, Station D
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Page 1 of:	10	Ottawa, Canada K1P 5Y6
Attention:	**MAILSTOP AF**	
	Examiner Shi K. Li –	Tel.: (613) 232-2486
	Group Art Unit 2613	Fax: (613) 232-8440
From:	SMART & BIGGAR	
Your file no.:	10/067,910	**Date:** January 29, 2007
Reply to Ottawa file no.:	78848-33	**Time:**

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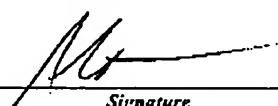   ☐ courier

TRANSMITTAL LETTER (General - Patent Pending)	Docket No. 78848-33 /slr

In Re Application Of: DAVID W. BOERTJES, ET AL

Application No. 10/067,910	Filing Date February 8, 2002	Examiner Shi K. Li	Customer No. 07380	Group Art Unit 2613	Confirmation No. 8036

Title: METHOD OF WDM CHANNEL TAGGING AND MONITORING, AND APPARATUS

COMMISSIONER FOR PATENTS:

Transmitted herewith is:

Appellant's Reply Brief Under 37 C.F.R. 41.41(a)(1)

Applicant submits herewith an Appellant's Reply Brief, in response to the Examiner's Answer mailed on November 29, 2006.

in the above identified application.

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Dated: January 29, 2006

R. Allan Brett
Reg. No. 40,476

Tel.: (613) 232-2486
cc:

P18A/REV04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

JAN 2 9 2007

Appl. No.   : 10/067,910   Confirmation No.   8036
Applicant   : David Boertjes, et al
Filed   : February 8, 2002
TC/A.U.   : 2613
Examiner   : Li, Shi K.

Docket No.   : 78848-33
Customer No.   : 07380

MAILSTOP AF
RESPONSE AFTER FINAL
EXPEDITED HANDLING REQUESTED

Commissioner for Patents
Alexandria, VA 22313-1450
U.S.A.

Dear Sir:

APPELLANT'S REPLY BRIEF UNDER 37 C.F.R. 41.41

The following is the Appellant's Rely Brief submitted to the Examiner's Answer dated November 29, 2006, submitted under the provisions of 37 C.F.R. 41.41.

Real Party in Interest

The real party in interest is the assignee of record, i.e. Nortel Networks Limited, current address 2351 Boulevard Alfred-Nobel, St. Laurent, Quebec, Canada, H4S 2A9.

Related Appeals and Interferences

There are no related appeals or interferences that will directly affect, be directly affected by, or have a bearing on the present appeal.

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Status of Claims

Claims 1-3, 15 and 39-44 are currently pending in the application. Claims 4-14 and 16-38 have been previously cancelled.

Remarks

On page 3 of the Examiner's Answer, the Examiner states that a further ground of rejection related to the appealed claims is:

> Claim 44 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states in the "Summary of Claimed Subject Matter" section on page 2 that the amendment to claim 44 submitted by the Applicant on August 9, 2006 was not entered.

Claim 44 as originally added was dependent on claim 15 and recited the additional limitation of the optical apparatus including "a plurality of basic functional components which are optical devices". The Examiner rejected this claim under 35 U.S.C. 112 for the reason discussed above, in the Final Office Action dated April 13, 2006.

In an effort to amend the claim to "particularly point out and distinctly claim the subject matter" defining a "basic functional component", Applicant added the limitation "wherein the plurality of basic functional components include one or more of a group consisting of at least one optical tap, at least one PIN detector, at least one erbium-doped fiber amplifier (EDFA), at least one dynamic gain flatten filter (DGFF), and at least one dispersion compensation module (DCM)". Optical devices such as optical taps, PIN detectors, EDFAs, DGFFs, and DCMs are included in the embodiments of Figures 1, 2A and 2B. A detailed description of the example of Figure 1 is located on page 14, line 13 to page 16, line 2. In particular, page 14, line 16 to page 15 line 14, describes that the "optical line amplifier is formed of a series of basic functional components comprising input and output erbium-doped fiber amplifiers (EDFAs) 30,40

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respectively, a dynamic gain flattened filter DGFF 50 and a dispersion compensation module
(DCM) 60 connected in series" (emphasis added).

However, in the Advisory Action of August 29, 2006 which was issued in response to the
Applicant's submission of August 9, 2006, the Examiner alleged that the amendment to claim 44
changed the scope of the claim and therefore the claim would require further consideration or
search.

Applicant submits that since the description defines examples of optical devices that are
considered to be "basic functional components", one skilled in the art would be capable of
determining whether an optical device used in an optical apparatus adapted to monitor cross-talk
is a basic functional component.

Applicant submits that the meaning of "basic functional components" that has been
further defined in amended claim 44, "particularly points out and distinctly claims the subject
matter" regarded as the invention. As amended claim 44 distinctly claims the subject matter
which Applicant regards as the invention, Applicant submits that the amended claim meets the
requirements of 35 U.S.C. 112. Furthermore, as claim 15, upon which claim 44 depends,
patentably distinguishes over the cited prior art for at least the reasons discussed in the Appeal
Brief filed October 13, 2006, Applicant submits such an amendment does not change the scope
of the claim, therefore no further consideration or search would be required.

Applicant respectfully requests that the rejection of amended claim 44 be reconsidered by
the Board and withdrawn.

With regard to the first ground of rejection to be reviewed under appeal identified in the
Appeal Brief and agreed upon by the Examiner in the Examiner's Amendment, namely:

1. Whether claims 1-3, 15, 39-40, 42 and 44 are unpatentable under 35 U.S.C.
103(a) over non-patent reference "Method for Crosstalk Measurement and
Reductions in Dense WDM Systems", Journal of Lightwave Technology, Vol.
14, No. 6, June 1996 by K. Ho in view of non-patent reference "Estimation of

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the SRS Crosstalk on Pilot tones in WDM Systems using a Dither Transfer

Matrix", S. Seydnejad et al, OFC 2001, 17-22 March 2001,

the Examiner alleges on page 4 of the Examiner's Answer that "Ho et al. teaches in Equation (5)
crosstalk level $XT_{k,i}$ which is equivalent to β_{ij} of instant claim". Applicant disagrees.

The variable β_{ij} is defined in the description and claims of the present application as the
power transfer coefficient. In the claims, the variable β_{ij} is first introduced by name in claim 2.
The power transfer coefficient is recited in claim 2 to be determined from an equation $\beta_{ij} =$
$(\beta_{ij}P_j)/P_j$ wherein P_j is the power of a channel, j, corresponding to the at least one channel and
$\beta_{ij}P_j$ is the fractional power of a dither, i, corresponding to the dither present upon the at least one
channel.

Page 18, starting at line 16 of the present specification states:

"At the optical splitter 210, the multiplexed optical signal S3 is split into a

multiplexed optical signal OSA3 that propagates to the OSA 230 and split into

a multiplexed optical signal PIN3 that propagates to the PIN detector 220. For

each channel of the multiplexed optical signal OSA3 the OSA 230 measures an

indicator of the channel power, P_j, (j = 1 to N where N is the number of

channels) of the multiplexed optical signal M1. The OSA 230 also measures

an indicator of a fractional power, $\beta_{ij}P_j$, of AM tone i present upon channel j of

the multiplexed optical signal M1 (the power, $\beta_{ij}P_j$, is a fraction of the power,

AM_i)".

Starting at line 30 of the same page:

"Information associated with the powers P_j and $\beta_{ij}P_j$ is sent to the control

circuit 370 through inputs 432 and 431, respectively. The control circuit 370

then calculates the power transfer coefficients, β_{ij}, using

$$\beta_{ij} = \frac{\beta_{ij}P_i}{P_j}. \qquad (3)"$$

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Therefore, the power transfer coefficient is calculated based on the power for a given channel and the power of a particular dither present on the given channel.

In claim 1, determination of the power transfer coefficient is recited as "determining a power transfer coefficient from the fractional power and the channel power of the at least one channel". Both the fractional power and the channel power are used in determining the power transfer coefficient.

Turning now to Ho et al., the first paragraph on page 1128 discloses "At the receiver, the crosstalk induced by other channels is monitored by measurement of the power of the corresponding identification tones. For example, as shown in Fig. 1, the cross talk suffered by the ith channel can be measured from the electrical power at tone frequencies $f_{i+/-1}$, $f_{i+/-2}$,...". The analysis on page 1128 results in a variable $XT_{k,i}$ identified in Equation (5). Equation (5) is of the form $XT_{k,i} = \dfrac{\pi_{k,f_i}}{\pi_{k,f_k}}$. The value of $XT_{k,i}$ is disclosed immediately prior to Equation (5) as being the comparison of the electrical power at f_i and f_k, where f_i and f_k are the frequencies of particular identification tones or dithers.

Equation (4) defines π_{k,f_i} as being the electrical power of the ith identification tone in the photocurrent of the kth channel demultiplexer. Therefore, Equation (5) is the ratio of the electrical power of the ith identification tone in the photocurrent of the kth channel demultiplexer and the electrical power of the kth identification tone in the photocurrent of the kth channel demultiplexer. The value of $XT_{k,i}$ is determined as a ratio of identification tones or dithers on a given channel. This is not the same manner in which the power transfer coefficient is determined in the present claims. The power transfer coefficient as described in the present application is determined based on a channel power and at least one dither power, which is a fractional power of the total of all dither powers on that channel. As such, Applicant submits that Ho et al. does not disclose "determining a power transfer coefficient from the fractional power and the channel power of the at least one channel" as recited in particular in claim 1.

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Furthermore, Applicant submits that Seydnejab does not disclose "determining a power transfer coefficient from the fractional power and the channel power of the at least one channel" as recited in claim 1.

Thus, the recited features of claim 1 are not all disclosed by the cited references, either alone or in combination, and it is submitted that the Examiner has failed to satisfy a first necessary criterion for establishing a *prima facie* case of obviousness.

Claims 2, 3 and 39 are dependent upon claim 1. For at least the above-discussed reasons and the reasons submitted in the Appeal Brief, it is submitted that there is a clear deficiency in establishing a *prima facie* case of obviousness with respect to claims 2, 3 and 39. As claim 1 patentably distinguishes over the cited references for at least the reasons discussed above and submitted in the Appeal Brief, Applicant submits that claims 2, 3 and 39 are patentable as well.

Claim 15 is an apparatus claim directed to similar subject matter of claim 1. For at least the reasons discussed above with regard to claim 1 and those submitted in the Appeal Brief, Applicant submits that claim 15 patentably distinguishes over the cited references.

Claims 40, 42 and 44 depend on claim 15. As claim 15 patentably distinguishes over the cited references for at least the reasons discussed above and the reasons submitted in the Appeal Brief, Applicant submits that claims 40, 42 and 44 are patentable as well.

Furthermore, with regard to claim 42, the Examiner alleges on page 5 of the Examiner's Answer that Ho et al. discloses in equation (4) that "the photocurrent (re)presents channel power" (amendment in brackets added). As discussed above with regard to the disclosure of Ho et al., equation (4) actually represents "The electrical power of the ith identification tone in the photocurrent of the kth channel demultiplexer". The electrical power of a particular identification tone in a given channel, is not the same as the channel power as a whole.

With regard to the second ground of rejection to be reviewed under appeal identified in the Appeal Brief and agreed upon by the Examiner in the Examiner's Amendment, namely:

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2. Whether claims 41 and 43 are unpatentable under 35 U.S.C. 103(a) over Ho

et al. in view of Seydnejad, and further in view of United States Patent No.

5,892,606 (Fatehi et al.),

Applicant submits that since claim 41 depends on claim 1 and claim 43 depends on claim 15,

claims 41 and 43 should be allowed for the same reasons as discussed above with reference to

claims 1 and 15 as well as the reasons submitted in the Appeal Brief. Applicant submits that the

Fatehi reference also fails to disclose the features of claims 1 and 15 that Ho et al. and Seydnejad

fail to disclose, namely monitoring non-linear cross-talk of a multiplexed optical signal.

Thus, the recited features of claims 41 and 43 are not all disclosed by the cited references,

either alone or in combination, and it is submitted that the Examiner has failed to satisfy a first

necessary criterion for establishing a *prima facie* case of obviousness.

In the "Response to Argument" Section on page 11 of the Examiner's Answer, the

Examiner alleges that "the steps of the method in claim 1, or the components of the apparatus as

recited in claim 15 do not differentiate whether the power, fractional power and power transfer

coefficient are affected by, or arise from, linear or non-linear effects, the structure and

manipulation of Ho et al. combined together with the teaching of Seydnejad et al is capable of

monitoring linear crosstalk as well as nonlinear crosstalk and meets the claim". Applicant

submits that claim 1 clearly recites that the fractional power of any dither present upon at least

one channel results "at least in part from the non-linear process of the transmission medium" and

that the power transfer coefficient is indicative of cross-talk occurring on the at least one channel,

"the cross-talk due at least in part to the non-linear process in the transmission medium".

Furthermore, Applicant submits that one skilled in the art would understand that if the fractional

power of any dither present upon at least one channel varied due to the non-linear process of the

transmission medium, the channel power would likewise vary. Claim 15 recites similar subject

matter. Applicant respectfully submits that the Examiner has erred in making such an allegation

and therefore, as the Examiner's allegation is incorrect, the combination of Ho et al. and

Seydnejad does not meet the claim.

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Conclusions

With respect to the issues presented herein for review having regard to the Examiner's Answer of November 29, 2006, Applicant respectfully submits that errors have been made in the rejection of the appealed claims. A *prima facie* case of obviousness has not been established.

Regarding the issue of whether claims 1-3, 15, 39-40, 42 and 44 are unpatentable under 35 U.S.C. 103(a) over non-patent reference "Method for Crosstalk Measurement and Reductions in Dense WDM Systems", Journal of Lightwave Technology, Vol. 14, No. 6, June 1996 by K. Ho in view of non-patent reference "Estimation of the SRS Crosstalk on Pilot tones in WDM Systems using a Dither Transfer Matrix", S. Seynejad et al, OFC 2001, 17-22 March 2001, Applicant respectfully requests that the rejection of these claims be reconsidered by the Board and withdrawn.

Regarding the issue of whether claims 41 and 43 are unpatentable under 35 U.S.C. 103(a) over Ho et al. in view of Seynejad, and further in view of United States Patent No. 5,892,606 (Fatehi *et al.*), Applicant respectfully requests that the rejection of these claims be reconsidered by the Board and withdrawn.

Respectfully submitted,

DAVID BOERTJES, ET AL.

By _____

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Date:

RAB:JMC:MSS:mcg

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